DOCUMENT RESUME

ED 136 63[illegible] HE 008 616

AUTHOR	Greenberg, Robert M.
TITLE	Summary Report. Indiana College-Level Manpower Study Report Number 8.
INSTITUTION	Indiana State Commission for Higher Education, Indianapolis.
SPONS AGENCY	Lilly Endowment, Inc., Indianapolis, Ind.
REPORT NO	P76105
PUB DATE	Jun 76
NOTE	41p.; For related documents, see HE 008 614-615
AVAILABLE FROM	Indiana State Commission for Higher Education, Indianapolis, Indiana 46202
EDRS PRICE	MF-$0.83 HC-$2.06 Plus Postage.
DESCRIPTORS	*Career Choice; *College Graduates; College Majors; Employers; *Employment Potential; Health Occupations Education; Higher Education; *Job Market; *Labor Market; Legal Education; Liberal Arts; Medical Education; Nursing; Occupational Choice; Social Sciences; State Surveys; Teachers
IDENTIFIERS	*Indiana; *Indiana College Level Manpower Study

ABSTRACT

Selected findings of seven previously published reports of the College-Level Manpower Study are summarized. Factors involving both manpower supply and demand were investigated and educational and occupational areas in which major supply/demand imbalances exist were determined. The primary goal was to investigate the manpower supply/demand relationships between college graduates and the labor market demand in Indiana. It was found that most manpower studies in existence appeared to assess college-level manpower supply without taking into account the plans and aspirations of the students themselves. It was also common to estimate various types of manpower demand without considering the preferences of employers concerning the educational levels and fields of study for their new employees. This report reviews the findings on: student career plans; business and industry hiring of college graduates; potential imbalances in supply/demand; liberal arts and social sciences fields; elementary and secondary school teachers; law and legal assistants; and medicine, nursing and allied health fields. (LBH)

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SUMMARY REPORT

INDIANA COLLEGE-LEVEL MANPOWER STUDY

Report Number Eight

U S DEPARTMENT OF HEALTH,
EDUCATION & WELFARE
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Indiana Commission for Higher Education

P76105

INDIANA COLLEGE-LEVEL MANPOWER STUDY

Report Number Eight

SUMMARY REPORT

by

Robert M. Greenberg, Ed.D.
Project Director

June, 1976

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The Indiana College-Level Manpower Study
is supported by a grant from the
Lilly Endowment.

INDIANA COLLEGE-LEVEL MANPOWER STUDY LIST OF PUBLICATIONS

Publications to date:

1. *Review of Literature Related to a College-Level Manpower Study for the State of Indiana*, January, 1975.

2. *Educational Plans and Career Choices of High School College Preparatory Students in Indiana*, October, 1975.

3. *Educational Plans and Career Choices of Bachelor's Degree Recipients in Indiana*, November, 1975.

4. *Educational Plans and Career Choices of Associate Degree Recipients in Indiana*, December, 1975.

5. *Employability of College Graduates in Indiana Business and Industry*, February, 1976.

6. *The Demand for Legal Assistants in Indiana*, June, 1976.

7. *Employability of Elementary and Secondary School Teachers in Indiana*, June, 1976.

8. *Summary Report*, June, 1976.

PREFACE

The Indiana College-Level Manpower Study has been conducted by the Indiana Commission for Higher Education to provide manpower information of value to planning at the postsecondary level. Factors involving both manpower supply and demand were investigated, and educational and occupational areas in which major supply/demand imbalances exist were determined. This report is a summary of selected findings of the seven previously completed reports of the study.

The Indiana College-Level Manpower Study was conducted at the Commission with the aid of a grant from the Lilly Endowment. The Commission wishes to express its appreciation to the Lilly Endowment for this support. The views expressed in this report are not to be construed as those of the Endowment.

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INTRODUCTION

The primary goal of the Indiana College-Level Manpower Study was to investigate the manpower supply-demand relationships between college graduates and the labor market demand in Indiana. It was hoped that, as a result of the study, specific areas could be identified in which major imbalances exist. Such information can be of potential value to a wide variety of audiences including the Commission for Higher Education, Indiana's colleges and universities, and to high school and college students as they engage in the process of choosing from among the many academic and occupational alternatives lying before them.

The first stage of the study involved a review of literature related to college-level manpower studies.[1] It was found that research involving the supply of and demand for manpower in virtually all occupations are studied by various associations, institutions, agencies, and organizations. In fact, a major problem was not locating manpower-related materials but involved the determination of its timeliness and value to postsecondary educational planning.

Because of the value of many of the manpower reports received, it became a goal of the study to make the collection of such reports an ongoing Commission function. In this manner the Commission is better able to keep itself informed of current studies which relate to the Commission's own program and planning activities.

The review of literature also led to the conclusion that there was a dearth of information concerning the complex relationships between college education

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1. Indiana College-Level Manpower Study, Report Number 1, Review of Literature Related to a College-Level Manpower Study for the State of Indiana.

and various forms of employment. Most manpower studies appeared to assess college-level manpower supply without taking into account the plans and aspirations of the students themselves. It was also common to estimate various types of manpower demand without considering the preferences of employers concerning the educational levels and fields of study for their new-hires. These types of manpower supply-demand relationships became principal foci of the Indiana College-Level Manpower Study.

STUDENT CAREER PLANS

At some point in college-level manpower analysis it becomes necessary to investigate the supply of graduates to the work force. In most cases, projections of degrees granted are used to assess this supply. However, such degree projections, particularly at the levels of associate and bachelor's degrees, do not necessarily have direct relationships to the types of jobs the degree recipients seek. For this reason, degree projections alone are inadequate as a measure of college-level manpower supply.

In order to obtain information concerning degrees granted and major fields of study, the Occupation and Career Interest Survey was conducted. A questionnaire was used in assessing the educational short-term occupational and long-term career plans and aspirations of students who were within weeks of receiving either an associate or a bachelor's degree in Indiana's public and independent colleges and universities.[1]

It was found that, among bachelor's degree recipients, two-thirds of the survey respondents expected that their long-term careers would be "highly related" to their undergraduate field of study. These included 62 percent of the liberal arts majors and 55 percent of the social science majors. Only four percent of the respondents did not expect that there would be a relationship in this regard. At the associate degree level, an even higher percentage of respondents (79 percent) expected a high degree of relationship between major field of study and career. The implication of this finding is that the large majority of college students, at the point of graduation, view at least part of the importance of college education as its contribution to their pursuit of a desirable career.

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1. Indiana College-Level Manpower Study, Reports Numbers 3 & 4, Educational Plans and Career Choices of Bachelor's Degree Recipients in Indiana, and Educational Plans and Career Choices of Associate Degree Recipients in Indiana.

The academic and career choices of students were not generally made on the bases of current labor market information but upon such factors as students' interest, perceived talents and aptitudes, and the desire to be of service to others. College courses, previous work experience, and college teachers had been, by far, the most influential sources of information or guidance to the students in making their career choices while printed materials, placement and career counselors, and other counselors had not been highly influential. Far fewer than half of the graduates indicated that they had ever received occupational or career counseling while in college.

The college classroom appears to be the factor of greatest influence to students in making career decisions. Universities and colleges might take steps to increase their efforts in counseling and career guidance in the classroom setting.

Approximately seventy percent of the associate degree recipients and eighty percent of bachelor's degree recipients indicated that they expected to complete further postsecondary-level degrees. Though many of these expectations may not, in actuality, come to fruition, it would appear that a large majority of graduates recognize the potential value of additional postsecondary education and plan to pursue further studies.

The data of the Occupational and Career Interest Survey were collected and analyzed toward the ultimate goal of estimating the college-level manpower produced in one year in Indiana at the associate and baccalaureate degree levels. Survey findings were extrapolated to represent total degrees granted in the state in order to develop these estimates, and expected migration from Indiana was also taken into account. The extrapolations are presented in Appendix A.

BUSINESS AND INDUSTRY HIRING OF COLLEGE GRADUATES

The business and industry sector of the economy stands out as a major employer of college graduates. A recently published report stated that 29 percent of all bachelor's or higher degree recipients, including 35 percent of the males and 16 percent of females, were working for private companies ten years after their freshman year in college. Business and industry was surpassed in this regard only by educational institutions.[1] It is probable that, with recent declines in hiring to teaching occupations and various types of government positions, the percentage of graduates seeking employment by businesses and industries will increase.

In our survey of a sample of 1975 bachelor's degree recipients in Indiana, it was found that only 22 percent hoped to make their long-term careers working in business and industry. At the associate degree level, 33 percent hoped to pursue careers in this environment.[2] Clearly, many college students who anticipate working in other environments will find themselves employed in business and industry. It is expected that a sizable proportion of these individuals will be among the 29 percent of the bachelor's degree recipients who had hoped to work in an educational institution. Others may come from the ranks of medical school and law school aspirants who fail to gain admission to a graduate program of their choice. Because these students anticipated careers in other work environments, many will seek employment in business and industry and will possibly find their initial positions after graduation neither satisfying nor highly remunerative.

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1. The CPC Foundation, Report No. 4, College Graduates and Their Employers, pg. 10.

2. Indiana College-Level Manpower Study, Reports Numbers 3 and 4.

A number of examples will support the view that there is probably a shortage of seniors who have prepared themselves for certain positions in businesses and industries in Indiana. Table 1 compares average job openings in three occupations between 1970-1980, as projected by the Indiana Employment Security Division (I.E.S.D.),[1] with the number of bachelor's degree recipients expecting to pursue careers in each occupation, as estimated from the Commission's survey of bachelor's degree recipients.[2]

TABLE 1: COMPARISON OF JOB OPENINGS WITH SENIORS' CLASS PLANS

	I.E.S.D. Projections of Job Openings		Career Plans of Bachelor's Degree Recipients	
Occupation	Decade Job Openings (1970-1980)	Annual Openings (Average)	No. Expecting to Pursue Career	No. Expecting to Pursue Career in Ind.
Bank & financial mgrs.	5,237	524	739	264
Buyers	4,795	480	234	45
Sales managers	6,706	671	343	135

The data of Table 1 indicate that fewer bachelor's degree recipients aspire to careers in Indiana in these three major occupations than the job openings which will become available in the average year between 1970 and 1980.

Positions as office managers, administrative assistants and sales representatives hold a similar potential. These positions are thought to be desirable by few college underclassmen, but by the time the senior year is reached they are much more attractive. Such jobs may provide entry-level openings for many graduates. The college student who gains practical experience in business or industry and engages in some coursework involving accounting, management, or marketing should be aided in finding a job subsequent to his graduation with vertical mobility then becoming dependent upon his on-the-job performance.

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1. Indiana Employment Security Division, Indiana's Interim Manpower Projections 1970-1980, pg. 25.

2. Indiana College-Level Manpower Study, Report No. 3, pg. 41.

There is indication that, at both the undergraduate and graduate levels, students are shifting to majors in the area of business and commerce in order to have "guaranteed" themselves a desirable job after graduating. High school seniors who complete the Student Descriptive Questionnaire of the College Entrance Examination Board indicate their first choice of a college major field of study. Indiana high school seniors have shown a noticeable shift toward majoring in business over the past two years.

TABLE 2: PERCENTAGE OF INDIANA HIGH SCHOOL SENIORS CHOOSING A BUSINESS-COMMERCE MAJOR

	1972-73	1973-74	1974-75
Male	13%	14%	15%
Female	9	10	14
TOTAL	11	12	14

Source: Responses to Student Descriptive Questionnaire of the College Entrance Examination Board's Admission Testing Program

Among associate degree recipients in Indiana, 21 percent of the males and six percent of the females, a total of thirteen percent of those receiving this degree, expected to pursue further studies in the area of business/management.[1]

At the bachelor's level there was a shift from non-business fields to business. Ten percent of the study's questionnaire respondents indicated that business/management had been their first major while fifteen percent claimed it as their major at graduation.[2] Twelve percent expected to pursue a graduate degree in business as a future major, many of these being students whose undergraduate majors were in other areas.

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1. Indiana College-Level Manpower Study, Report No. 4, pg. 14.

2. Indiana College-Level Manpower Study, Report No. 3, pg. 14.

In order to assess the employability of college graduates in Indiana's businesses and industries, an interview survey of 274 of the state's employers of one hundred or more personnel, and a mailed survey of three hundred employers of from fifty to 99 personnel was conducted. The person contacted was generally an individual in a high-level position in personnel administration. These respondents were able to speak about their company's hiring practices as they related to college graduates, and they also discussed their views regarding the manner in which colleges and universities prepare students for employment. The following paragraphs on the private sector are based on the findings of this study.[1]

Students who major in occupation-related college fields of study such as business, engineering, technology, and computer science have the greatest chances of finding suitable employment in the private sector of the economy. Combined with practical work experience and good communication skills, such majors would offer excellent prospects for a graduate intending to pursue a career working for business or industrial firms.

For the liberal arts, social science, and education majors seeking employment in business and industry, the situation is less optimistic. However, their chances for employment are enhanced when they have taken coursework related to business or technology and have gained work experience related to these areas. Employers will continue to consider communication skills, personality, previous work experience, recommendations of former employers, and appearance as important factors in estimating the employability of job applicants to all entry-level positions.

Mention should be made of the problem of "underemployment," defined as "working at a job below that which education and experience would indicate."

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1. Indiana College-Level Manpower Study, Report No. 5, Employability of College Graduates in Indiana Business and Industry.

Employers are not in favor of the underemployment of college graduates because they feel that it leads to dissatisfaction and unhappiness for the employee and high turnover rates for the company. However, they argue strongly that many college graduates, particularly those who have engaged in little or no practical work experience, should be willing to accept lower level positions in order to learn about business procedures, the specific company's operations, and to demonstrate their own promotability. Unlike previous periods of high demand for college students when graduates could enter jobs demanding college-level preparation, the future degree recipients will increasingly have to accept a period in which they must work at lower-level positions and prove their worth on-the-job. Employers do not support the practice of underemployment, but a lower-level position is not always considered underemployment for a graduate when the lines of promotion are open to higher positions.

Though the interview respondents were not supportive of the concept of underemployment, a majority indicated a preference for a person with at least some college experience in filling a position requiring no more than a high school diploma. Their primary expressed reason for this preference was that such a person was promotable, and approximately three-quarters of the respondents stated that educational background was always or often taken into account in promotion considerations. However, 61 percent stated that their companies rarely or never were willing to pay more to a college graduate than to a high school graduate for doing the same kind of work. These findings support the view that, for many college graduates, the occupational and financial benefits of their college education might not be realized directly after graduation, but occur as they begin to become considered for promotion to higher-level positions.

Indiana businesses and industries are not having difficulty hiring educationally qualified people to fill their positions. The only entry-level occupation for which they currently experience difficulty in finding sufficient manpower is that of engineers. However, the respondents generally expected their companies will be finding that increasing percentages of their employees are college graduates. This increase will be a result of some upgrading of job activities, but primarily a result of the fact that many more college graduates will be seeking employment with them. The only conclusion to be drawn is that the college students who have best prepared themselves, through college course-work and work experience, will have the most success in locating desirable jobs. Others will be forced to take whatever positions are offered them, be they in the private sector or in some other area of the work force.

The findings of this survey of employers contain numerous implications concerning the manner in which college students are prepared for business/industry employment. Perhaps the most striking of these is the value employers put upon the previous work experience of the individual being considered for a position. The relative importance of such factors as college grades and recommendations of teachers are far less important in contributing to employability than is previous work experience. The student who has engaged in a cooperative or internship program or who has gained summer work experience related to the type of position he hopes to obtain is at a great advantage over those who have not had such experience.

The survey respondents generally favored hiring graduates with major fields of study related to the type of occupation pursued. However, many felt that overemphasis upon a specialized area in college might lead to weaknesses in the areas of communications and human relations skills, which were viewed as

being of major importance in evaluating candidates for various jobs. The college student pursuing a degree in a highly specialized area would often be well advised to take some coursework in areas related to advancing communications and human relations skills.

Many respondents indicated that earlier and more effective career counseling would help students prepare for business and industrial employment. It was of particular concern that many college graduates appeared to believe that the degree automatically leads to a high-level, high-salaried position. Career counseling should present a realistic portrait of the types of positions and salaries a college graduate can expect to receive.

Earlier career counseling, claimed many respondents, would enable more students to assess the job market and do a better job of preparing themselves for employment. Not only could earlier counseling give students a more accurate idea of the types of positions available to them, but they would also be able to direct their academic and extracurricular programs in ways which enhance their employability.

It was also noteworthy that companies employing from fifty to 99 personnel appeared to employ lower percentages of college graduates than did larger companies, and fewer of the small companies anticipated that the percentage of their overall employees who were college graduates would increase over the next few years. Though there appeared to be a variety of employment opportunities for college graduates in some of the smaller companies such positions were not available with all of them, as evidenced by the many respondents from small companies who commented that they currently hire no college graduates and do not plan to do so in the foreseeable future.

POTENTIAL IMBALANCES IN SUPPLY/DEMAND

One of the goals of this study was to identify academic areas in which the number of graduates is in imbalance with the labor market demand for them. Of considerable concern to educators and students are those areas for which the instructional programs are highly specialized for a given job market. The need for personnel for certain occupations may be quite sensitive to many factors beyond the control of the universities since changes in the economy or public policies can markedly affect the supply and demand picture.

Of equal importance are the non-occupationally oriented academic programs where little is known about the impact of these students on supply and demand considerations for market analyses. The liberal arts and social sciences, though they are currently experiencing enrollment declines, continue to account for a large percentage of college degrees granted each year and relationships between these graduates and the jobs that are available to them is of major importance. A number of the larger areas for which this concern can be expressed will be discussed in this section of the report.

The field of education accounted for more than 5,000 bachelor's degrees granted in Indiana in 1974-75, even after a number of years in which a shortage of jobs for teachers had been highly publicized. A view of the current and future prospects of those hoping to become teachers is of major importance.

Law is a career to which a great many bachelor's level graduates aspire, yet not all are admitted to law school and, it would appear from current information, not all who obtain degrees in law are able to find closely related employment. Law and its related emerging profession of legal assistants were topics of analysis in this study.

LIBERAL ARTS/SOCIAL SCIENCES

The student who majors in the liberal arts or social sciences generally graduates from college with fewer job-related skills than the graduates of other programs. If his education has been successful he is able to pursue learning independently, to view problems analytically, and to think abstractly, critically, and creatively. Unfortunately, evidence of such capabilities is often difficult to produce in the course of a job interview. Because the skills developed by liberal arts/social science majors are rarely directly related to job activities, these people are often employed at lower salaries and lower-level positions than bachelor's degree recipients in more job-oriented subject areas.

For many liberal arts/social science majors, the undergraduates years are viewed as preparation for graduate school, which typically provides training for a specific profession such as law or teaching. Thirty percent of social science majors and 27 percent of liberal arts majors expected to be enrolled in graduate or professional study the fall after receiving the baccalaureate degree.

Eighty-nine percent of Indiana's graduates of liberal arts programs in 1975 expected to pursue careers in professional, technical, and kindred occupations. Thirty-seven percent of these hoped to become writers, artists, or entertainers, 23 percent aspired to education professions, and numerous others chose such professions as law, the clergy, and library or museum work. Of the social science majors aspiring to this occupational category, 22 percent chose the professions of psychologist or social scientists, 21 percent chose education professions, twenty percent selected law, and fourteen percent hoped to become social workers. Sixty-two percent of liberal arts majors and 55 percent of social science majors anticipated that their careers would be highly

related to their undergraduate majors, thirty and forty percent, respectively, expected that career and major would be somewhat related, and fewer than eight percent from each major did not expect that there would be a relationship between their major and their career.

Table 3 presents supply and demand estimates for a number of occupations commonly chosen by liberal arts/social science majors, but rarely by students with other majors. Projected decade job openings for the decade are taken from I.E.S.D.[1] data and divided by ten to arrive at an annual average of openings for the decade.

TABLE 3: SUPPLY AND DEMAND ESTIMATES FOR FIVE OCCUPATIONS RELATED TO LIBERAL ARTS/SOCIAL SCIENCES

	I.E.S.D. Projections of Job Openings		Career Plans of Bachelor's Degree Recipients[2]	
Occupation	1970-80	Average Openings Per Year	No. Expecting to Pursue Career	No. Expecting to Pursue Career in Ind.
Social scientists (excl. psych.)	812	81	496	123
Psychologists	486	49	384	114
Writers & kindred	3,399	340	562	231
Librarians, curators, archivists	2,401	240	234	126
Social workers	2,590	259	559	342

The grouping of social scientists includes such occupations as economist, sociologist, urban and regional planner, and other similar occupations, all of them in a non-teaching capacity. It would appear that graduates aspiring to such positions greatly outnumber the anticipated job openings. The same situation holds for psychologists and social workers, where aspirants to the occupations are greatly in excess of the average annual job openings. Even if one allows

1. Indiana Employment Security Division, Indiana's Interim Manpower Projections 1970-80, pg. 20-25.

2. Indiana College-Level Manpower Study, Report No. 3, pg. 44.

for the rough nature of this type of data, there can be little doubt that many graduates expecting to pursue careers in these occupations will be unable to find positions.

The grouping of writers and kindred includes such occupations as author, editor, reporter, and public relations writer. The field does not appear to be in great imbalance. However, the jobs considered most attractive, particularly those in journalism, are highly competitive.

The occupation of librarian accounts for most of the librarian-curator-archivist grouping. This area appears to be one in which demand exceeds supply. However, many of the openings are in small communities, pay extremely low salaries, and are not the types of positions generally sought by young college graduates. If libraries had the financial support to enhance their facilities, collections, and salaries, this might become a more attractive area. In general, however, the positions desired by college graduates with graduate degrees in library science will be highly competitive.

Many of the liberal arts/social science graduates hope to pursue graduate studies and enter the area of college teaching. The surplus of aspirants to this profession has been well documented, and only the rare combination of superior academic credentials and good fortune will enable one to gain entry to college teaching.

Limited entry-level opportunities for liberal arts/social science majors exist in business and industry, particularly in sales and lower-level management. Unfortunately, most majors in these areas do not consider these alternatives until they are about to graduate, a time too late for them to take the accounting, marketing, management, or technology courses or to gain the practical work experience which would help them enhance their employability.

Study of the liberal arts and social sciences adds, indirectly, to the employability of college students by developing their communication, human relations, and analytical skills. Such skills are considered important by a variety of potential employers. However, in order to find a desirable job in business or industry subsequent to graduation the majors in these areas should concentrate upon developing further skills which are more specifically job-related.

The particularly advantage of the liberal arts/social sciences in the job market is that they provide a great degree of flexibility to the student. Because he has not generally committed himself to a particular career pattern he has the opportunity to explore a broader range of areas of study and career options, and the chance to add a number of specific skills to his general academic background. If the majors in these areas are willing to consider a variety of career alternatives and to seek elective coursework and summer and part-time employment which add to their skills, they should find themselves more successful on the job market than is currently the case.

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ELEMENTARY AND SECONDARY SCHOOL TEACHERS

The education and training of teachers has traditionally been an area in which a number of Indiana's colleges and universities have been heavily involved. In the 1974-75 academic year, after a number of years in which a teacher surplus had received a great deal of publicity, 5,318 baccalaureate degrees in education were conferred by Indiana institutions. This represented over twenty percent of the bachelor's degrees granted statewide.[1] Though the number of degrees granted in education had declined from the early 1970's, they

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1. Academic Degrees Conferred 1974-75: Public and Independent Colleges and Universities in Indiana, Indiana Commission for Higher Education, January, 1976.

still represented a very significant part of the state's academic community. For this reason, a separate study concerning the supply of and demand for public school teachers in Indiana was conducted as part of the College-Level Manpower Study. The following information is taken from the report of that study.[1]

A survey of all of the state's school corporation superintendents was conducted to gain information regarding current supply/demand imbalances in teaching areas. Table 4 represents the superintendents' views concerning this topic, based upon their experiences in their own school corporations.

TABLE 4: TEACHER SUPPLY/DEMAND RELATIONSHIPS, BASED UPON EXPERIENCE OF INDIANA SCHOOL SUPERINTENDENTS

Teaching Area	Great Oversupply	Moderate Oversupply	Relative Balance	Moderate Undersupply	Great Undersupply	General Conclusion
Kindergarten	20.0%	53.7%	25.5%	0.8%	0.0%	Mod.oversupply
Elementary clsrm.	65.9	31.8	2.3	0.0	0.0	Great oversupply
Special education	4.9	31.2	49.0	13.4	1.6	Mod.oversupply
Secondary level						
English	18.8	52.1	25.7	3.4	0.0	Mod.oversupply
Social studies	76.9	22.3	4.5	0.0	0.0	Great oversupply
Language	5.8	29.1	50.4	14.3	0.4	Mod.oversupply
Music	4.2	32.8	52.7	9.9	0.4	Mod.oversupply
Art	3.1	21.5	62.3	12.3	0.8	Mod.oversupply
Mathematics	1.9	25.7	42.5	28.0	1.9	Rel.balance
Physical educ.	79.8	18.1	1.6	0.0	0.4	Great oversupply
Science	4.7	28.0	48.8	16.9	1.6	Mod.oversupply
Business	8.7	41.4	44.1	5.7	0.0	Mod.oversupply
Agriculture	0.0	0.0	15.4	51.9	32.7	Mod.undersupply
Home economics	11.0	52.0	34.2	2.7	0.0	Mod.oversupply
Industrial arts	0.0	6.5	35.4	43.0	15.2	Mod.undersupply
Vocational	0.9	3.1	29.4	52.2	14.5	Mod.undersupply

The superintendents were apparently finding that in a number of teaching areas, particularly secondary-level physical education, social studies, and elementary-level classroom teaching, there were great oversupplies of teachers in relation to the jobs available. For most teaching areas there appeared to be a moderate oversupply of teachers, and the only areas in which an undersupply was felt to exist were vocational education, the industrial arts, and agriculture.

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1. The Employability of Elementary and Secondary School Teachers in Indiana, Indiana College-Level Manpower Study, Report No. 7.

Projections of future demand for inexperienced teachers[1] in Indiana's public schools do not lead one to believe that the situation indicated by the survey of superintendents is likely to change in the foreseeable future. Table 5 presents actual and projected hiring of inexperienced teachers in the state, assuming the student/teacher ratio is maintained at the 1975-76 level.[2]

TABLE 5: ACTUAL AND PROJECTED HIRING OF INEXPERIENCED TEACHERS IN INDIANA, 1970-71 TO 1981-82 (CONSTANT STUDENT/TEACHER RATIO*)

	(Actual)						(Projected)					
	1970-71	1971-72	1972-73	1973-74	1974-75	1975-76	1976-77	1977-78	1978-79	1979-80	1980-81	1981-82
Elementary												
Student enrollments	774,554	776,753	747,935	735,029	709,612	689,576	676,576	665,026	648,360	633,565	618,692	620,000
Student/tchr. ratio	24.5	24.3	24.0	23.7	23.2	22.7	22.7	22.7	22.7	22.7	22.7	22.7
Total no.of teachers	31,600	31,581	31,226	30,996	30,565	30,393	29,805	29,296	28,562	27,910	27,255	27,313
Total no.inexperienced teachers needed	3,579	2,967	2,599	2,359	1,925	1,607	1,850	1,831	1,532	1,551	1,492	2,158
Secondary												
Student enrollments	348,560	357,364	360,082	363,686	363,332	362,758	362,371	360,144	358,664	350,555	340,300	325,000
Student/tchr. ratio	21.6	22.1	22.2	22.2	22.2	21.3	21.3	21.3	21.3	21.3	21.3	21.3
Total no. of teachers	16,135	16,193	16,222	16,362	16,347	16,993	17,013	16,908	16,839	16,458	15,977	15,258
Total no.inexperienced teachers needed	1,494	1,165	1,107	1,145	1,038	927	915	788	817	495	380	126

*Student/teacher ratio maintained at level of 1975-76.

The projections of Table 5 indicate that, if student/teacher ratios are held constant at the level of 1975-76, the need for new elementary school teachers will not decline significantly through the rest of the 1970's and may increase noticeably by 1981-82. At the secondary level, however, decreasing enrollments will lead to drastic declines in the hiring of new teachers beginning about 1979-80.

As enrollments in schools decline, there appears to be a tendency for student/teacher ratios to decline as well. For this reason, an additional set of projections was developed which assumes a decrease of 0.3 students per teacher during each year of lowered enrollments. This assumed changing rate in

1. Inexperienced teachers are those who have not completed one year of full-time teaching experience.

2. The methodology for the development of these projections is discussed in the College-Level Manpower Study, Report No. 7.

in student/teacher ratios was based upon 1970-75 changes at the elementary level. Table 6 presents projections of the need for inexperienced teachers based upon a declining student/teacher ratio.

TABLE 6: ACTUAL AND PROJECTED HIRING OF INEXPERIENCED TEACHERS IN INDIANA, 1970-71 TO 1981-82 (DECLINING STUDENT/TEACHER RATIO*)

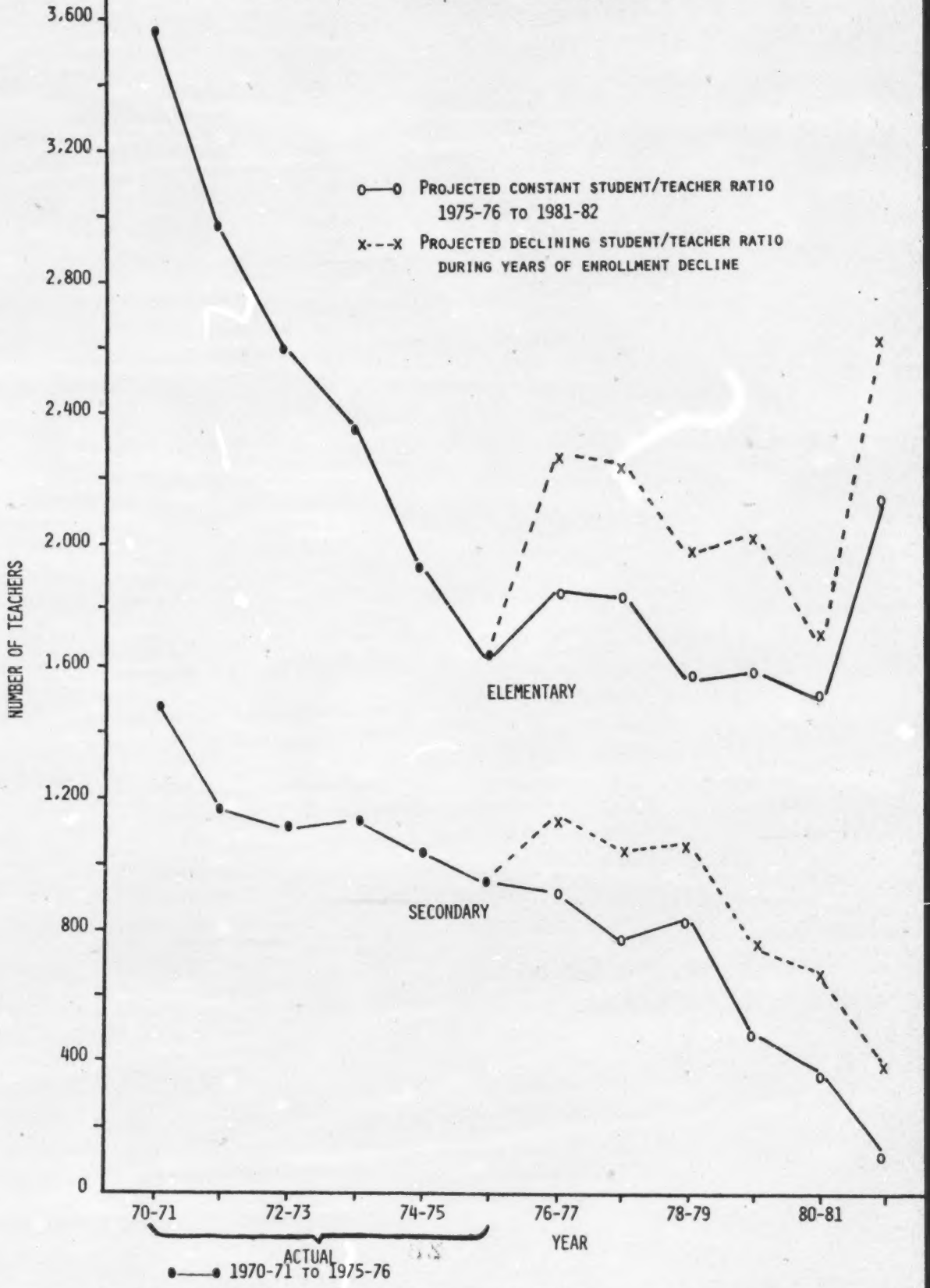
	(Actual)						(Projected)					
	1970-71	1971-72	1972-73	1973-74	1974-75	1975-76	1976-77	1977-78	1978-79	1979-80	1980-81	1981-82
Elementary												
Student enrollments	774,554	776,753	747,935	735,029	709,612	689,576	676,576	665,026	648,360	633,565	618,692	620,000
Student/tchr. ratio	24.5	24.3	24.0	23.7	23.2	22.7	22.4	22.1	21.8	21.5	21.2	21.2
Total no. of teachers	31,600	31,581	31,226	30,996	30,565	30,393	30,204	30,092	29,741	29,468	29,184	29,245
Total no.inexperienced teachers	3,579	2,967	2,599	2,359	1,925	1,607	2,249	2,236	1,954	2,009	1,681	2,611
Secondary												
Student enrollments	348,560	357,364	360,087	363,696	363,332	362,758	362,371	360,144	358,664	350,555	340,300	325,000
Student/tchr. ratio	21.6	22.1	22.2	22.2	22.2	21.3	21.0	20.7	20.4	20.1	19.8	19.5
Total no. of teachers	16,135	16,193	16,222	16,362	16,347	16,993	17,256	17,398	17,582	17,441	17,187	16,667
Total no.inexperienced teachers	1,494	1,165	1,107	1,145	1,038	927	1,158	1,043	1,089	771	660	392

*Student/teacher ratios projected to decline at rate of 0.3 students/teacher per year, during years of enrollment declines.

As can be seen, the declining student/teacher ratios result in a greater need for new teachers than do the constant ratios assumed for Table 5. With declining ratios the hiring of inexperienced teachers at the elementary level will hold at about 2,000 per year through the rest of the 1970's. At the secondary level, however, even declining student/teacher ratios will not hold back rapid decreases in the need for new teachers.

Figure 1 represents graphically the projections of demand for inexperienced teachers contained in Table 5 and Table 6 above.

FIGURE 1: ACTUAL AND PROJECTED DEMAND FOR ELEMENTARY AND SECONDARY SCHOOL TEACHERS, 1970-71 THROUGH 1981-82.



Note: The sharp rise in the demand for new elementary level teachers in 1981-82 is a short-term phenomenon resulting primarily from the fact the elementary enrollment stabilized in this year after a decade of declines.

Various studies have indicated that, with recognition of the teacher surplus of the early 1970's, there has been a tendency for some young people to shift their career aspirations from teaching to other professions. It is possible that this decrease in those aspiring to careers as elementary school teachers, combined with projected stable hiring at about 2,000 teachers per year at this level, will lead to a significant decrease in the great oversupply of such teachers in many subject areas, and that for some areas the surplus of teachers in relation to the demand for them may increase by the end of the decade.

* * * * *

LAW AND LEGAL ASSISTANTS

The number of law school graduates in the United States increased rapidly between 1963 and 1974, nearly tripling in that decade with more than half of this growth occurring between 1971 and 1974. This pattern was mirrored in Indiana where the early 1970's saw the following numbers of degrees awarded by the state's four law schools:

1969-70	1970-71	1971-72	1972-73	1973-74	1974-75	1975-76
327	361	488	729	772	546	615

The 1974-75 figure does not represent a permanent decline but was caused by extremely high enrollments for the previous two graduating classes in some institutions, putting restrictions upon their admissions for the 1974-75 class due to space and facility restrictions. Overall, law degrees granted for the rest of the decade should average about 680 to 700 per year.

New lawyers are currently faced with a very tight job market in areas requiring this degree and it is not anticipated that this situation will improve in the foreseeable future. An article in the Fall, 1975 issue of the Occupational

Outlook Quarterly presents the Bureau of Labor Statistics' view that, though the demand for lawyers will accelerate, supply will continue to outpace demand.[1]

Unlike many occupational areas, the supply of lawyers to the work force does not appear to be particularly sensitive to limited demand for them. Though the current surplus of lawyers being produced has been well publicized, large numbers of bachelor's degree recipients still compete for admission to law schools. It is estimated that between five percent and six percent of Indiana's bachelor's degree recipients hope to enter law school, and that, of the 1974-75 bachelor's level graduating class, 1,248 hoped to become lawyers, 433 planning to pursue careers in Indiana. These law school aspirants came from a variety of undergraduate major fields of study, particularly the social sciences, the liberal arts, and business.[2] Of course, many applicants for admission to Indiana's four law schools received undergraduate degrees out-of-state, so the Indiana law schools should be able to maintain their average first year enrollments of approximately 750 per year.

The Indiana Employment Security Division reported that there were 4,456 people employed as lawyers in the state in 1970, and projected that this figure would rise to 5,966 by 1980. Combining this expansion with labor force separations (death, retirement, change of job or location) they estimated that there would be 3,340 lawyers' positions to be filled between 1970 and 1980.[3] This figure represents an annual average of 334 openings per year over the decade, though the annual figures might be higher toward the end of the decade than in its earlier years. The numbers of annual law degrees granted and the number of aspirants to careers as lawyers have been far in excess of this annual average

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1. Ginter, Steve, "Law School Graduates Face Tight Job Market," Occupational Outlook Quarterly, Washington, D. C., Fall, 1975, pp. 2-3.

2. Indiana College-Level Manpower Study, Report No. 3, pg. 44.

3. I.E.S.D., Indiana's Interim Manpower Projections 1970-1980, pg. 25.

figure of 334 job openings since the early years of the decade. The competitive job market for lawyers nationwide appears to be equally tight in Indiana.

A number of factors can influence the supply of and demand for lawyers. If, for example, the government were to initiate a program whereby needed legal services could be guaranteed for lower income groups, the demand for lawyers might increase greatly. It is also known that many law degree recipients plan careers other than the practice of law. Reasonable options are politics, public service, and business or industry. In actuality, most law degree recipients seek employment as practicing lawyers, and federal legal insurance will probably not be provided in the foreseeable future. The bright spot for law school graduates who are unable to find jobs as lawyers is that they will probably be in better positions to find good employment elsewhere than will the graduates of many of the other post-baccalaureate programs whose primary career goals are thwarted.

Many first-year lawyers are employed in law firms where they perform duties that the more experienced lawyers prefer to avoid. These activities do not always require the services of a lawyer, but they provide a way for the person to gain practical experience in many fundamentals of actual legal practice and, in doing so, provide a type of on-the-job training. As some law firms, particularly larger firms, turn to the use of legal assistants it is possible that entry-level positions for lawyers will be reduced.

The occupation of legal assistant is one about which very little is currently known. The duties and responsibilities of legal assistants fit somewhere between those of a legal secretary and those of the lawyer himself, and the primary reason for the occupation's existence is to release the lawyer from work which could be completed by other trained personnel. However, the actual activities of a legal assistant, the best type of training and education

of such a person, and the general employability of them are, to date, uncertain.

A questionnaire survey of all identifiable law firms in Indiana was conducted in order to assess the statewide demand for legal assistants.[1] Survey findings indicated that the employment of legal assistants will increase in Indiana, as over eighty percent of the respondents agreed with a statement to that effect. Two-thirds of the respondents thought that effective use of legal assistants reduces the cost of legal services and, of the 59 responding firms already employing a legal assistant, nearly two-thirds had found this practice to be "highly beneficial."

It was found that two-thirds of the law firms participating in the study might consider hiring a legal assistant if such a person were available, and 22 percent of the firms actually anticipated seeking such a person with an additional 31 percent undecided in this regard. With approximately 900 law firms listed in Indiana, survey findings indicated that there might be a demand for approximately one hundred legal assistants per year in the state for a number of years. Beyond such a short-range assessment, the demand for legal assistants will depend upon such factors as their further acceptance by the legal profession and the average number of years employed legal assistants will stay in their jobs. However, it would appear that this emerging occupation is one for which the statewide demand for trained personnel is not being met by the supply produced by Indiana's colleges and universities.

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1. Indiana College-Level Manpower Study, The Demand for Legal Assistants in Indiana, Report No. 6.

MEDICINE, NURSING, AND ALLIED HEALTH

Educational Programs preparing students to enter the wide variety of health-related occupations constitute an important part of postsecondary education. Approximately thirteen percent of bachelor's degree recipients and 34 percent of associate degree recipients in 1974-75 hoped to pursue careers in this area.[1] The degrees required for entry to such careers range from medical degrees in highly specialized areas to technical certificates which can be earned in a year's time.

Enrollments and degrees conferred in programs designed to prepare students for careers in the health care area have increased rapidly in the last five years. For example, between 1970-71 and 1974-75 the number of bachelor's degrees conferred in programs for health professions more than doubled in Indiana. Though much of this growth is a result of a previously identifiable manpower shortage in health care, planning should be undertaken to see that this does not lead to a substantial surplus. This phenomenon has been experienced in engineering and teaching in recent years. There are, for example, indications that we have already begun to produce a surplus of nurses and other health care personnel in some parts of the nation. The supply of and demand for graduates of college programs trained to meet the health care needs of Indiana is a highly detailed and complex subject worthy of a separate research study independent of this manpower study.

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1. Indiana College-Level Manpower Study, Reports Nos. 3 and 4.

CONCLUSIONS

A large majority of college graduates aspire to careers in professional, technical, and managerial types of occupations which are generally associated with high socioeconomic status. Throughout most of the nation's history the college degree has been a virtual guarantee of entry to such an occupation and we have grown accustomed to viewing it in this manner. However, in the years subsequent to World War II higher education enrollments and degrees conferred have increased more rapidly than the number of job openings sought by college graduates. By the mid-1970's it has become apparent that the United States is faced with a long-term situation in which the number of annual college graduates will exceed the number of annual job openings generally sought by the highly educated.

Such forecasts are based upon the projections of degrees granted and the projections of the labor force. Major shifts on either side could alter the anticipated imbalances between the number of college graduates and the availability of the professional, technical, and managerial positions they can be expected to seek. For example, if college enrollments were to decline sharply, there would eventually be fewer graduates seeking such positions. Also, if the nature of work tasks in some occupations were upgraded to the point where a college degree became required for entry to the occupations, the demand for graduates would increase.

It is not expected that major shifts of this nature will take place in the immediate future. As a result, a greater number of college graduates than the types of available positions they seek will probably be with us on a nationwide basis for some years to come. The increased competition for the available

higher-level jobs will cause many college graduates to find themselves in the position of seeking and accepting positions which, in earlier years, they would not have considered. These positions will often be among the more desirable jobs which formerly were offered to individuals with no education beyond high school. As a result of the number of college graduates exceeding the number of jobs calling for them, then, it will become more difficult for those without college degrees to get desirable types of employment.

College attendance offers numerous nonmonetary benefits, both to enrollees and to society in general. However, most students hope that the considerable investment of time and money involved with their college education will enable them to find meaningful, interesting, and monetarily rewarding employment. If they find that the college degree does not lead to a better job than they otherwise would have obtained, they may rapidly grow skeptical of the value of their degree, regardless of its aesthetic contribution to their lives. As a result, colleges and universities will become increasingly accountable for the successful placement of their graduates. Increased attention must be paid to the problems involved in aiding college graduates to find suitable employment after their graduation. Activities related to this problem concern not only the development of effective placement services, but also involve other institutional functions.

Students can be aided in making career choices and pursuing their career objectives in an effective manner by means of early career counseling. Earlier counseling will enable the student to structure his academic program and to gain types of work experience which will improve his chances of obtaining the type of job sought.

College degree program development is another factor involved in the manner in which higher education prepares individuals for evolving occupations. Responsible program development should take into account various types of college-level manpower supply and demand information. The proliferation of degree programs without consideration for graduates' employment opportunities is both expensive to the public and disheartening for those emerging from such programs.

The importance of reliable manpower information and career guidance and counseling are made apparent by recent enrollment trends which indicate that college students take job opportunities into account when choosing a major field of study. The widespread publicity concerning the surplus of teachers has led to major declines in the number of students pursuing careers in education. The more short-term surplus of engineers in the early 1970's led to a decline in freshmen enrollments in engineering which, in turn, resulted in a shortage of engineers by the mid-1970's. Recognition of the shortage of individuals trained to work in various health-related occupations has led to greatly increased enrollments in many of these fields, some of which could be recognizing manpower surpluses in the future.

Care must be taken in the manner in which institutions, planners, counselors, and individuals react to manpower surpluses and shortages. If the fact remains that there will be more college graduates than available appropriate jobs, the development of new degree programs tied to narrowly defined occupational fields coupled with the counseling of students into these programs with short-term manpower shortages may prove to be counterproductive to institutions, individuals, and society.

Many college graduates will find their first jobs after graduation will not be professionally or technically challenging, but such opportunities will

available after they gain a period of on-the-job experience and become eligible for promotion. This important factor of promotability can be enhanced by students during the course of their college education. Within their academic programs students should be encouraged to select coursework which will give them a measure of flexibility when the time comes for them to seek employment. Degree programs tied to training in an occupational area should include coursework enhancing general knowledge and skills, such as communication and human relations skills, which are sought by many types of employers. Liberal arts, science, and social science programs should include the opportunity to pursue coursework in fields such as accounting, management, and technology, which provide students with skills making them more attractive on the job market. Though the surplus of college graduates may remain, it is likely that this type of flexibility will enable more of them to obtain jobs and, within a reasonable period of time, rise to the professional, technical, and managerial types of positions to which they aspire.

APPENDIX A

ASSOCIATE AND BACHELOR'S DEGREE MANPOWER PRODUCED IN INDIANA, 1974-75

The data of the Occupation and Career Interest Survey were collected toward the ultimate goal of estimating college-level manpower supply produced in Indiana in one year. Survey findings were extrapolated to represent the career plans and aspirations of all of Indiana's public and independent institutions' associate and bachelor's degree recipients for 1974-75. Because mobility is an important factor in assessing college-level manpower supply, those students who indicated that they expected to pursue careers in Indiana are also reported. Table A represents the extrapolations for associate degree recipients and Table B for bachelor's degree recipients. More detailed discussions of these tables are contained in Reports Number Three and Four of this study.

TABLE A: ASSOCIATE DEGREE-LEVEL MANPOWER PRODUCED IN INDIANA, 1974-75

Career Choice	All Graduates (Extrapolation)	Career Expected in Indiana (Extrapolation)	Percent Expecting Career in Indiana (Col.2 ÷ Col.1)
Professional, Techaical, Kindred	3,027	2,137	70.6%
Engineers	192	120	62.5
Life scientists	18	11	61.1
Physical scientists	0	0	--
Math specialists	0	0	--
Medical workers	1,086	906	83.4
Dentists	0	0	--
Optometrists	0	0	--
Pharmacists	6	6	100.0
Physicians/surgeons	13	5	38.5
RNs	1,006	854	84.9
Therapists	46	34	73.9
Veterinarians	0	0	--
Other medical	15	7	46.7
Technicians - health	185	142	76.8
Clinical/med. lab technicians	27	19	70.4
Dental hygienists/lab technicians	103	83	80.6
LPNs	0	0	--
Therapy technicians	14	14	100.0
Other health technicians	41	26	63.4
Technicians-science & engineering	275	161	58.5
Science technicians	37	12	32.4
Engineering technicians	238	149	62.6
Technicians - other	215	79	36.7
Aviation technicians	112	18	16.1
Other technicians nec	103	61	59.2
Computer specialists	157	125	79.6
Psychologists	50	32	64.0
Social scientists	17	5	29.4
Education professions	269	178	66.2
Elementary & pre-school teachers	43	41	95.3
Secondary school teachers	70	55	78.6
College teachers	74	45	60.8
Special ed. professions	27	11	40.7
School counselors	0	0	--
Other education professions	55	26	47.3
Writers, artists, entertainers	141	82	58.2
Writers & kindred	23	20	87.0
Artists & entertainers	118	62	52.5
Other professional,technical, kindred	422	296	70.1
Accountants & auditors	217	179	82.5
Architects	53	18	34.0
Clergy and kindred	3	3	100.0
Lawyers and judges	43	14	32.6
Librarians, curators, archivists	15	12	80.0
Social workers	47	41	87.2
Other	44	29	65.9
Managers, Officials, and Proprietors	393	263	66.9
Buyers, sales, loan managers	109	74	67.9
Bank and financial managers	22	16	72.7
Buyers	33	12	36.4
Sales managers	54	46	85.2
Administrators & public inspectors	64	48	75.0
Health administrators	19	14	73.7
School administrators	2	0	0.0
Other administrators	43	34	79.1
Inspectors, public	0	0	--
Other managers, officials, proprietors	220	141	64.1
Office managers, nec	109	80	73.4
Other managers and administrators	111	61	55.0

TABLE A (cont'd)

Career Choice	All Graduates (Extrapolation)	Career Expected in Indiana (Extrapolation)	Percent Expectin Career in Indian (Col.2 ÷ Col.1)
Sales Workers	61	52	85.2
Clerical Workers	224	175	78.1
Secretaries, stenographers, typists	186	147	78.6
Other clerical workers	38	28	73.7
Craftsmen, Foremen and Kindred	228	165	72.4
Foremen	30	30	100.0
Automotive workers	87	57	65.5
Other craftsmen, foremen and kindred	111	78	70.3
Operatives	6	6	100.0
Service Workers	134	103	76.9
Protective service workers	107	81	75.7
Other service workers	27	22	81.5
Laborers (non-farm)	6	6	100.0
Farmers & Farm Workers	9	9	100.0
Other	20	10	50.0
Military	6	0	0.0
Housewife	14	10	71.4
Total	4,108	2,926	71.2

TABLE B: BACHELOR'S DEGREE-LEVEL MANPOWER PRODUCED IN INDIANA, 1974-75

Career Choice	All Graduates (Extrapolation)	Career Expected in Indiana (Extrapolation)	Percent Expecting Career in Indiana (Col.2 ÷ Col.1)
Professional, Technical, Kindred	19,536	8,893	45.5%
Engineers	1,676	352	21.0
Life scientists	646	183	28.3
Physical scientists	391	42	10.7
Math specialists	129	21	16.3
Medical workers	2,929	1,646	56.2
Dentists	325	219	67.4
Optometrists	201	69	34.3
Pharmacists	316	258	81.6
Physicians/surgeons	907	436	48.1
RNs	646	442	68.4
Therapists	210	99	47.1
Veterinarians	105	24	22.9
Other medical	219	99	45.2
Technicians - health	201	129	64.2
Clinical/med. lab. technicians	135	84	62.2
Dental hygienists/lab technicians	24	12	50.0
LPNs	0	0	--
Therapy technicians	0	0	--
Other health technicians	42	33	78.6
Technicians-science & engineering	243	93	38.3
Science technicians	120	36	30.0
Engineering technicians	123	57	46.3
Technicians - other	129	36	27.9
Aviation technicians	36	0	0.0
Other technicians nec	93	36	38.7
Computer specialists	457	186	40.7
Psychologists	384	114	29.7
Social scientists	496	123	24.8
Education professions	6,062	3,679	60.7
Elementary & pre-school teachers	1,751	1,154	65.9
Secondary school teachers	1,682	1,187	70.6
College teachers	1,045	391	37.4
Special ed. professions	664	415	62.5
School counselors	385	246	63.9
Other education professions	535	286	53.5
Writers, artists, entertainers	1,442	520	36.1
Writers & kindred	562	231	41.1
Artists & entertainers	880	289	32.8
Other professional,technical, kindred	4,351	1,769	40.7
Accountants & auditors	943	526	55.8
Architects	189	36	19.0
Clergy and kindred	513	108	21.1
Lawyers and judges	1,258	433	34.4
Librarians, curators, archivists	234	126	53.8
Social workers	559	342	61.2
Other	655	198	30.2
Managers, Officials, and Proprietors	3,088	1,251	40.5
Buyers, sales, loan managers	1,316	444	33.7
Bank and financial managers	739	264	35.7
Buyers	234	45	19.2
Sales managers	343	135	39.4
Administrators & public inspectors	666	330	49.5
Health administrators	177	99	55.9
School administrators	228	138	60.5
Other administrators	261	93	35.6
Inspectors, public	0	0	—
Other managers, officials, proprietors	1,106	477	43.1
Office managers, nec	583	270	46.3
Other managers and administrators	523	207	39.6

TABLE B (cont'd)

Career Choice	All Graduates (Extrapolation)	Career Expected in Indiana (Extrapolation)	Percent Expecting Career in Indiana (Col.2 ÷ Col.1)
Sales Workers	472	192	40.7
Clerical Workers	60	42	70.0
Craftsmen, Foremen, and Kindred	114	81	71.1
Operatives	12	0	0.0
Service Workers	174	75	43.1
Laborers (non-farm)	12	0	0.0
Farmers & Farm Workers	310	180	58.1
Other	442	108	24.4
Military	304	21	6.9
Housewife	138	87	63.0
Subtotal	24,220	10,822	44.7
No response/unusable	224	82	36.6
Total	24,444	10,904	44.6